Financial Markets and Institutions

Abridged 10th Edition

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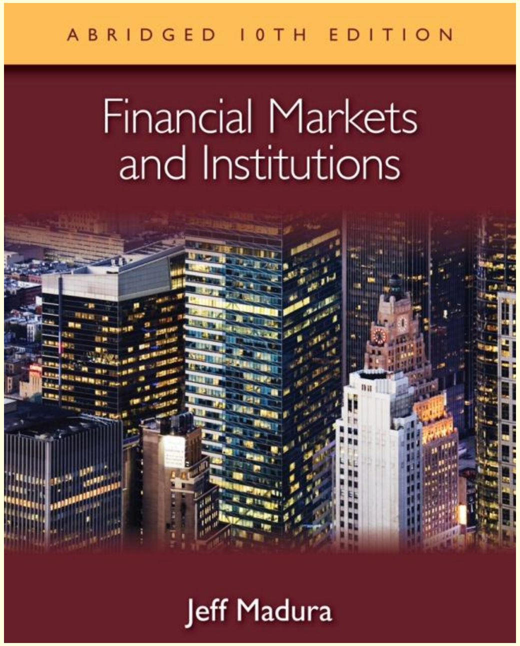


7 Bond Markets

Chapter Objectives

- provide a background on bonds
- describe the different types of bonds and their characteristics
- explain how bond markets have become globally integrated
- describe other types of long-term debt securities

Background on Bonds

- Long-term debt securities issued by government agencies or corporations.
- The issuer is obligated to pay interest (or coupon) payments periodically (such as annually or semiannually) and the par value (principal) at maturity.
- Bonds are often classified according to the type of issuer: treasury bonds, federal agency bonds, municipal bonds, and corporate bonds.
- Most bonds have maturities of between 10 and 30 years.
- Can be issued as **bearer bonds** or **registered bonds**.
- Bonds are issued in the primary market through a telecommunications network.

Exhibit 7.1 How Bond Markets Facilitate the Flow of Funds

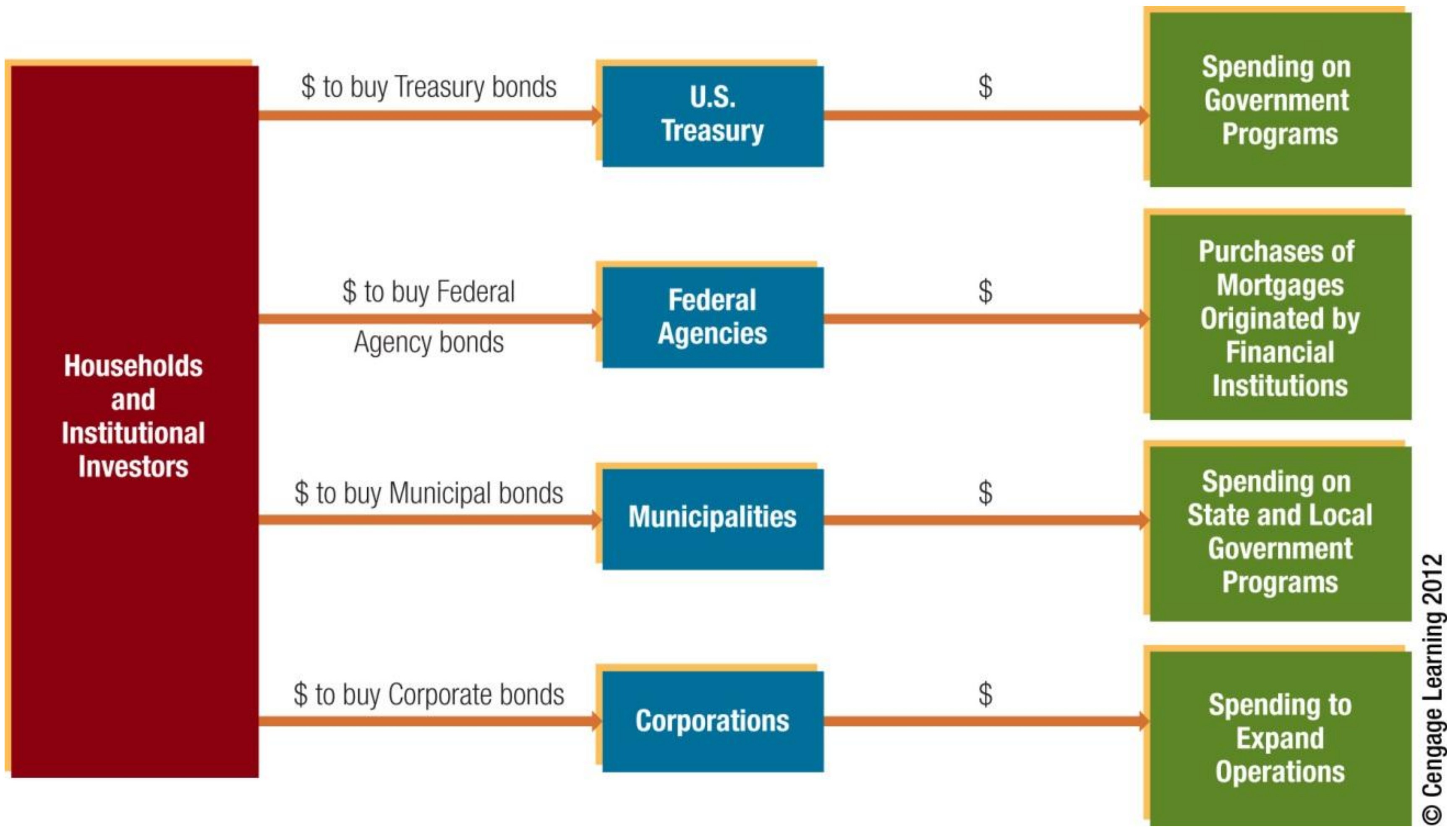


Exhibit 7.2 Participation of Financial Institutions in Bond Markets

FINANCIAL INSTITUTION	PARTICIPATION IN BOND MARKETS
Commercial banks and savings and loan associations (S&Ls)	• Purchase bonds for their asset portfolio. • Sometimes place municipal bonds for municipalities. • Sometimes issue bonds as a source of secondary capital.
Finance companies	• Commonly issue bonds as a source of long-term funds.
Mutual funds	• Use funds received from the sale of shares to purchase bonds. Some bond mutual funds specialize in particular types of bonds, while others invest in all types.
Brokerage firms	• Facilitate bond trading by matching up buyers and sellers of bonds in the secondary market.
Investment banking firms	• Place newly issued bonds for governments and corporations. They may place the bonds and assume the risk of market price uncertainty or place the bonds on a best-efforts basis in which they do not guarantee a price for the issuer.
Insurance companies	• Purchase bonds for their asset portfolio.
Pension funds	• Purchase bonds for their asset portfolio.

Bond Yields

1. Yield from the Issuer's Perspective

- Commonly measured by the yield to maturity.
- The yield to maturity is the annualized discount rate that equates the future coupon and principal payments to the initial proceeds received from the bond offering.

2. Yield from the Investor's Perspective

- Holding period return is used by bond investors who do not hold the bond until maturity.
- Yield consists of two components:

  (1) a set of coupon payments and

  (2) the difference between the par value that the issuer must pay to investors at maturity and the price it received when selling the bonds.

Treasury and Federal Agency Bonds

- The U.S. Treasury commonly issues Treasury notes and Treasury bonds to finance federal government expenditures.
- The minimum denomination for Treasury notes and bonds is now $100.
- Note maturities are less than 10 years whereas bond maturities are 10 years or more.
- Receive semiannual interest payments from the Treasury.
- Interest is taxed by the federal government as ordinary income, but it is exempt from any state and local taxes.

Treasury and Federal Agency Bonds

1. Treasury bond auctions

- Normally held in the middle of each quarter.
- Financial institutions submit bids for their own accounts or for their clients.
- Bids are submitted on a competitive or a noncompetitive basis.
  - **Competitive bids** specify a price and a dollar amount of securities to be purchased.
  - **Noncompetitive bids** specify only a dollar amount of securities to be purchased.

Treasury and Federal Agency Bonds

2. Trading Treasury bonds

- Bond dealers serve as intermediaries in the secondary market by matching up buyers and sellers of Treasury bonds.
- Dealers profit from the spread between the bid and ask prices.
- Treasury bonds are registered at the New York Stock Exchange, but the secondary market trading occurs over the counter.
- **Online Trading** - Investors can also buy bonds through the Treasury Direct program (www.treasurydirect.gov).
- **Online Quotations -** Treasury bond prices are accessible online at www.investinginbonds.com.

Treasury and Federal Agency Bonds

3. Stripped Treasury bonds

- The cash flows of bonds are commonly transformed (stripped) by securities firms to create principal only and interest only bonds.
- Stripped Treasury securities are commonly called **STRIPS** (Separate Trading of Registered Interest and Principal of Securities)
- STRIPS are not issued by the Treasury but instead are created and sold by various financial institutions.

Treasury and Federal Agency Bonds

4. Inflation-indexed Treasury bonds

- Provide returns tied to the inflation rate.
- Commonly referred to as TIPS (Treasury Inflation-Protected Securities)
- The principal value is increased by the amount of the U.S. inflation rate

5. Savings bonds

- Issued by the Treasury, but they can be purchased from many financial institutions.
- Can be purchased with as little as $25.
- Interest income on savings bonds is not subject to state and local taxes but is subject to federal taxes.

Treasury and Federal Agency Bonds

6. Federal Agency bonds

a. Issued by federal agencies such as the **Federal National Mortgage Association (Fannie Mae)** and the **Federal Home Loan Mortgage Association (Freddie Mac)** who use the proceeds to purchase mortgages in the secondary market.

b. During the credit crisis in 2008, Fannie Mae and Freddie Mac experienced financial problems because they had purchased risky subprime mortgages that had a high frequency of defaults.

c. The federal government rescued Fannie Mae and Freddie Mac so that they could resume issuing bonds and continue to channel funds into the mortgage market.

Municipal bonds

- Issued by state and local governments.
- **General obligation bonds** are supported by the municipal government's ability to tax.
- **Revenue bonds** are supported by revenues of the project (tollway, toll bridge, state college dormitory, etc.) for which the bonds were issued.
- Typically promise semiannual interest payments.
- Minimum denomination of municipal bonds is usually $5,000.
- Most municipal bonds contain a call provision.

Municipal bonds

1. Credit Risk of Municipal Bonds

- **Ratings of Municipal Bonds**

  Moody's, Standard & Poor's, and Fitch Investors Service assign ratings to municipal bonds based on the ability of the issuer to repay the debt.

- **Impact of the Credit Crisis on Municipal Bond Risk**

  During weak economic conditions, some state and local governments with large budget deficits may not be able to sell additional bonds, even when offering a higher yield, if investors are concerned that the governments may default on their debt.

- **Insurance against Credit Risk of Municipal Bonds**

  Some municipal bonds are insured to protect against default.

Municipal bonds

2. **Variable-Rate Municipal Bonds -** Have a floating interest rate that is based on a benchmark interest rate.

3. **Tax Advantages of Municipal Bonds**
   - Interest income is normally exempt from federal taxes.
   - Interest income within a particular state is normally exempt from the income taxes (if any) of that state.

4. **Trading and Quotations of Municipal Bonds**
   - Today there are more than 1 million different municipal bonds outstanding and more than 50,000 different issuers.
   - Many municipal bonds have inactive secondary markets.
   - Electronic trading of municipal bonds has become very popular.

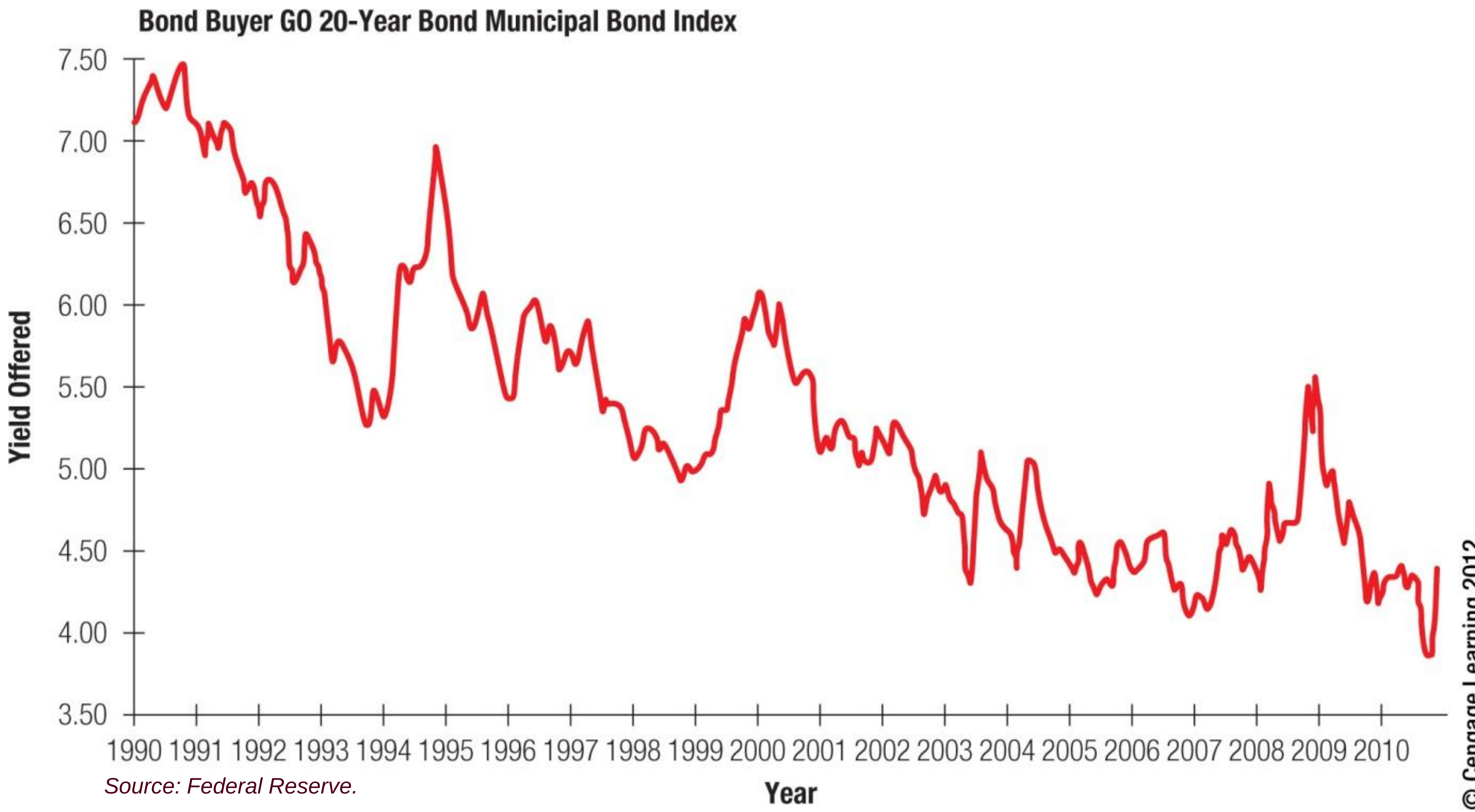
5. Yields Offered on Municipal Bonds (Exhibit 7.3)

a. The municipal bond must pay a risk premium to compensate for the possibility of default risk.

b. The municipal bond must pay a slight premium to compensate for being less liquid than Treasury bonds with the same maturity.

c. The income earned from a municipal bond is exempt from federal taxes allowing municipal bonds to offer a lower yield than Treasury bonds.

Exhibit 7.3 Yield Offered on General Obligation Municipal Bonds over Time



Source: Federal Reserve.

Corporate Bonds

- Long-term debt securities, issued by corporations, that promise the owner coupon payments (interest) on a semiannual basis.
- Minimum denomination is $1,000.
- Maturity is typically between 10 and 30 years.
- Interest paid by the corporation to investors is tax deductible to the corporation.
- Interest income earned on corporate bonds represents ordinary income to the bondholders and is therefore subject to federal taxes and to state taxes.

Corporate Bonds

1. Corporate Bond Offerings

a. Public offering: Underwriters try to place newly issued bonds with institutional investors.

b. Private placement
   - Small firms that borrow small amounts of funds (such as $30 million) may consider private placements rather than public offerings.
   - The institutional investors that purchase a private placement include insurance companies, pension funds, and bond mutual funds.

2. Characteristics of Corporate Bonds

a. Sinking fund provision - a requirement that the firm retire a certain amount of the bond issue each year.

b. Protective covenants – restrictions placed on the issuing firm that are designed to protect bondholders from being exposed to increasing risk during the investment period.

2. Characteristics of Corporate Bonds (Cont.)

c. Call provisions

- Normally requires a price above par value when bonds are called. The difference between the bond's call price and par value is the **call premium.**
- If market interest rates decline, the firm may sell a new issue of bonds with a lower interest rate and use the proceeds to retire the previous issue by calling the old bonds.

d. Bond collateral - Bonds can be classified according to whether they are secured by collateral and by the nature of that collateral.

e. Low and zero-coupon bonds

i. Issued at a deep discount from par value.

ii. Are purchased mainly for tax-exempt investment accounts.

Corporate Bonds

2. Characteristics of Corporate Bonds (Cont.)

f. **Variable rate bonds** – Long term debt securities with a coupon rate that is periodically adjusted.

g. **Convertibility** - Allows investors to exchange the bond for a stated number of shares of the firm's common stock.

h. **Default Rate** - The general level of defaults on corporate bonds is a function of economic conditions.

i. **Bond Ratings**

- Corporate bonds that receive higher ratings can be placed at higher prices (lower yields).
- Corporations are especially interested in achieving an investment-grade status on their bonds.
- As a result of the Financial Reform Act of 2010, rating agencies are subject to oversight by a newly established Office of Credit Ratings.

Secondary Market for Corporate Bonds

- The value of all corporate bonds in the secondary market exceeds $5 trillion.
- Bonds issued by large, well-known corporations in large volume are liquid because they attract a large number of buyers and sellers in the secondary market.
- About 95 percent of the trading volume of corporate bonds in the secondary market is attributed to institutional investors.

Secondary Market for Corporate Bonds

1. Corporate Bond Listing

a. Listed on an over-the-counter market or on an exchange such as the American Stock Exchange.

b. In 2007, the NYSE developed an electronic bond trading platform.

2. Types of Orders

a. Market order – the transaction will occur at the prevailing market price.

b. Limit order – the transaction will occur only if the price reaches the specified limit.

3. Trading Online

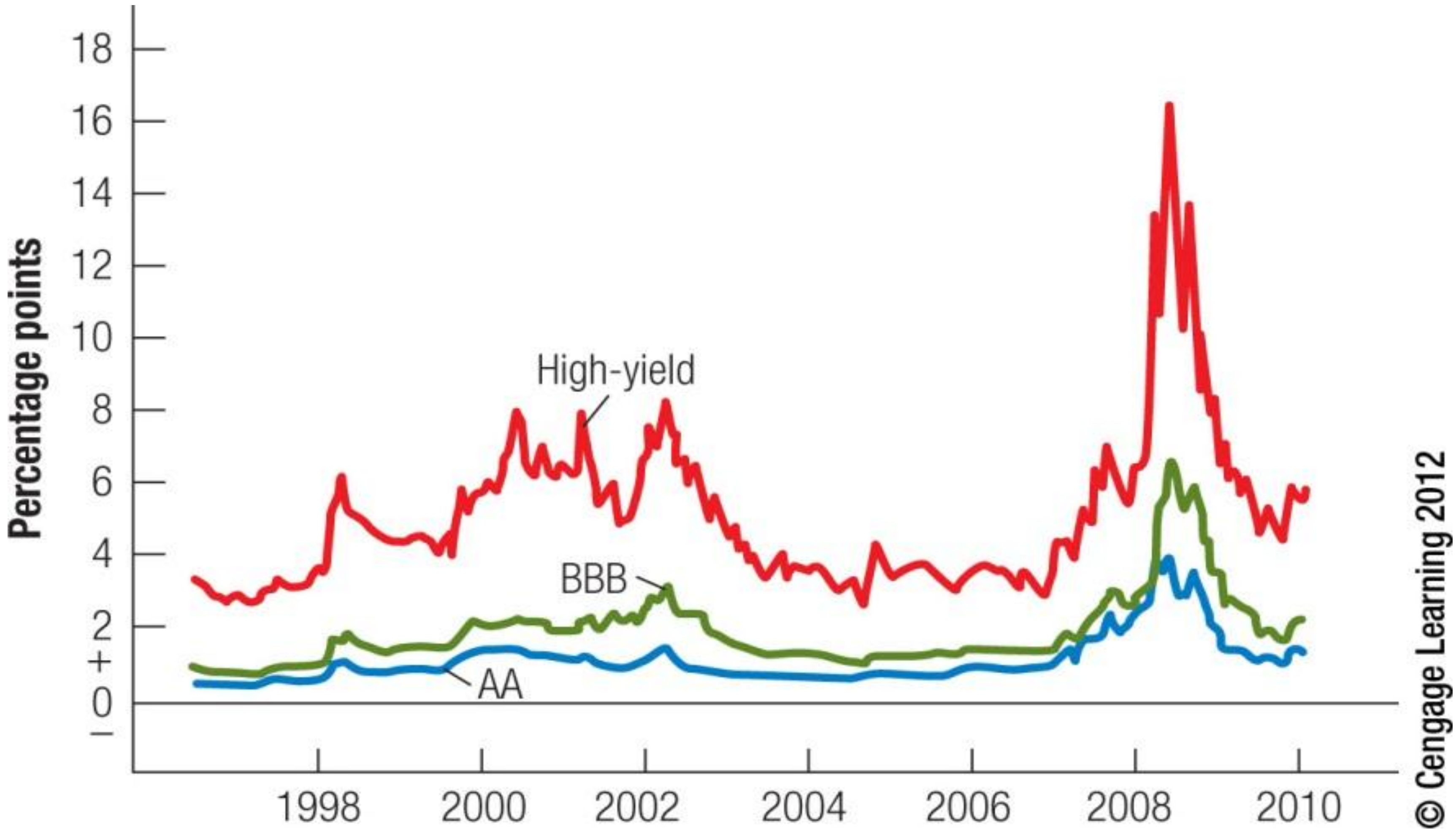
a. More orders to buy and sell corporate bonds are being placed online.

b. Some online bond brokerage services now charge a commission instead of posting a bid and ask spread.

Junk Bonds

1. Corporate bonds that have very **high risk**.
2. The **primary investors** in junk bonds are mutual funds, life insurance companies, and pension funds.
3. **Risk Premium of Junk Bonds**
    a. Junk bonds offer high yields that contain a risk premium (spread) to compensate investors for the high risk.
    b. Typically, the premium is between 3 and 7 percentage points above Treasury bonds with the same maturity.
    c. Investors require a higher premium when the economy is weak because there is a greater likelihood that the issuer will not generate sufficient cash to cover the debt payments.

Exhibit 7.4 Risk Premiums of Junk Bonds versus Other Corporate Bonds over Time



Source: Federal Reserve.

How Corporate Bonds Finance Restructuring

1. **Using Bonds to Finance a Leveraged Buyout** - The proceeds from debt are used to buy the outstanding shares of stock, so that the firm is owned by a small number of owners.

2. **Using Bonds to Revise the Capital Structure**
   - Debt is normally perceived to be a cheaper source of capital than equity as long as the corporation can meet its debt payments.
   - In some cases, corporations issue bonds and then use the proceeds to repurchase some of their existing stock. This strategy is referred to as a **debt-for-equity swap**.

Globalization of Bond Markets

1. Global Government Debt Markets

a. In general, bonds issued by foreign governments (referred to as sovereign bonds) are attractive to investors because of the government's ability to meet debt obligations.

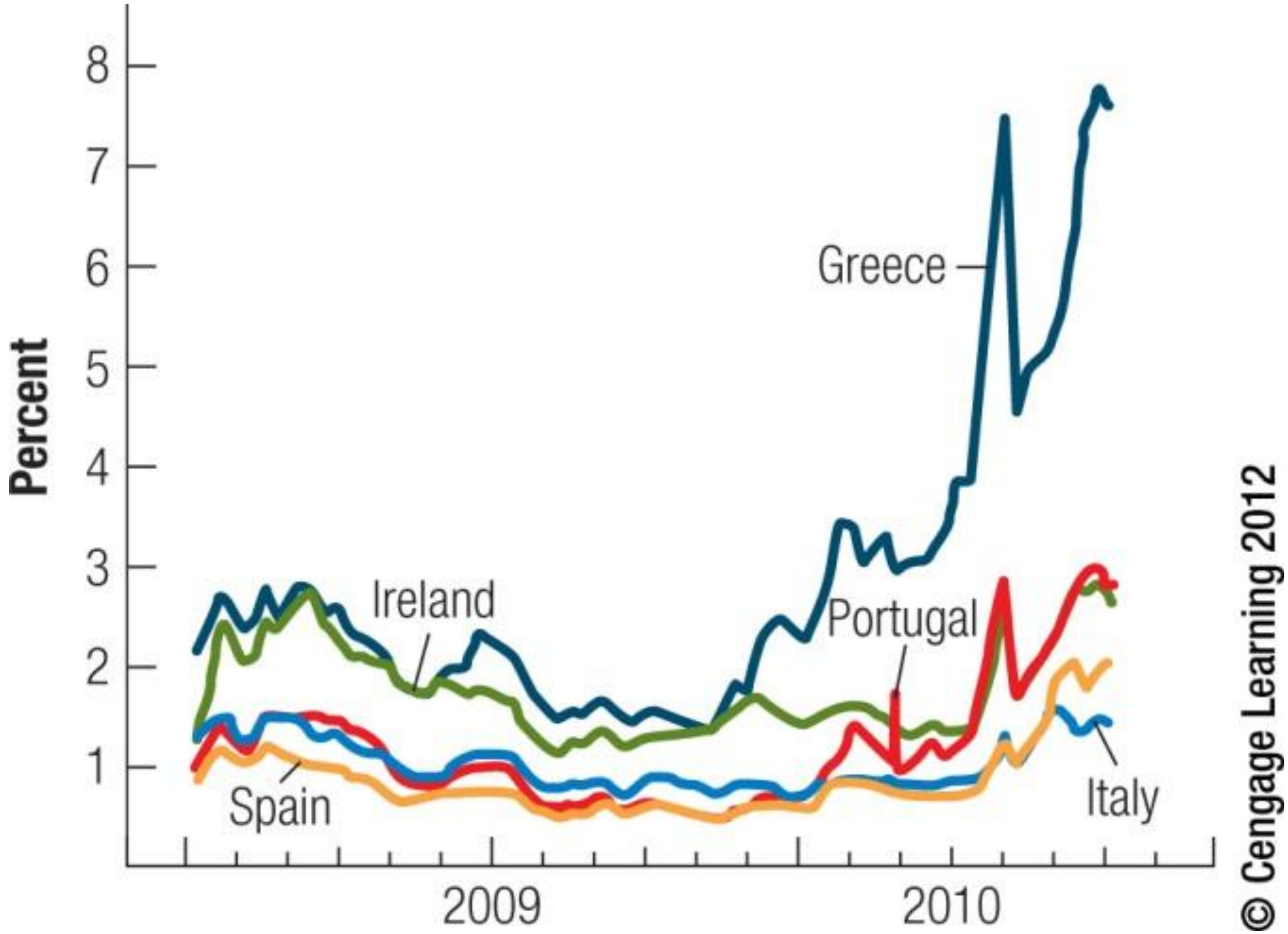
b. Given that sovereign bonds are exposed to credit risk, credit ratings are assigned to them by Moody's and Standard & Poor's.

2. Greek Debt Crisis

a. In spring of 2010, Greece experienced a credit crisis brought on by weak economic conditions and a large government budget deficit.

b. As Greece's deficit grew and its economy weakened, investors were concerned that the Greek government would not be able to repay its debt.

Exhibit 7.5 Risk Premiums on Debt Issued by Governments of Eurozone Countries



Source: Federal Reserve.

Eurobond Market

1. An underwriting syndicate of securities firms participates in the Eurobond market by placing the bonds issued.
2. The issuer of Eurobonds can choose the currency in which the bonds are denominated.

Other Types of Long-Term Debt

1. Structured Notes

- The amount of interest and principal to be paid is based on specified market conditions.
- **Risk of Structured Notes**
  - In the early 1990s, Orange County, California suffered losses and filed for bankruptcy due to investments in structured notes.
  - Because of the difficulty in assessing the risk of structured notes, some investors rely on credit ratings. However, credit rates of structured notes have not always served as accurate indicators of risk.

Other Types of Long-Term Debt

2. Exchange-traded notes

a. Debt instruments in which the issuer promises to pay a return based on the performance of a specific debt index.

b. Typically mature in 10 to 30 years and are not secured by assets.

3. Auction-rate securities

a. A way for borrowers (e.g., municipalities and student loan organizations) to borrow for long-term periods while relying on a series of short-term investments by investors.

b. Every 7 to 35 days, the securities can be auctioned off to other investors, and the issuer pays interest based on the new reset rate to the winning bidders.

SUMMARY

- Bonds are issued to finance government expenditures, housing, and corporate expenditures. Many financial institutions, such as commercial banks, issue bonds to finance their operations. In addition, most types of financial institutions are major investors in bonds.
- Bonds can be classified in four categories according to the type of issuer: Treasury bonds, federal agency bonds, municipal bonds, and corporate bonds. The issuers are perceived to have different levels of credit risk. In addition, the bonds have different degrees of liquidity and different provisions. Thus, quoted yields at a given point in time vary across bonds.

SUMMARY (Cont.)

- Bond yields vary among countries. Investors are attracted to high bond yields in foreign countries, causing funds to flow to those countries. Consequently, bond markets have become globally integrated.

- Structured notes are long-term debt instruments that allow investors to bet indirectly on or against a specific market that they cannot bet on directly because of restrictions. Exchange-traded notes (ETNs) are debt instruments in which the issuer promises to pay a return based on the performance of a specific debt index after deducting specified fees. They are not legally defined as mutual funds and therefore are not subject to mutual fund regulations. They also have more flexibility to use leverage, which can achieve higher returns for investors but also results in higher risk.